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## A PECULIAR PELVIC ATTACHMENT IN *NECTURUS* *MACULATUS*.

CLARA HEPBURN.

While studying the vertebral column of *Necturus maculatus*, in the regular class work, I found in my specimens a peculiar form of pelvic attachment which seems remarkable enough to mention.

The pelvis was attached to the eighteenth vertebra and, in addition, there were two rudimentary ribs on the nineteenth. There was nothing strange about the twentieth but on the twenty-first there was one half of a hæmal spine, that of the right side, the first complete hæmal arch being on the twenty-second.

For comparison in order to show its anomalous character, it is necessary to give the statistics concerning the conditions as reported hitherto. F. Smith, '00, and Wilder, '02, have summarized the results hitherto reported, including the papers of Parker, '96, Bumpus, '97, and Waite, '97.

In one hundred and fourteen specimens tabulated by Smith, the sacral vertebra was the nineteenth in eighty-one cases, the twentieth in sixteen and the twenty-first in one, this latter being the most posterior position ever recorded. In twelve cases the pelvis was oblique and of these three made use of the eighteenth on one side. In four cases there were three sacral ribs, that is, two upon one side and in one of these, figured by Smith on page 638, the ribs involved were the eighteenth on the right and the eighteenth and the nineteenth on the left. Thus in Smith's one hundred and fourteen cases, four involved the eighteenth vertebra but all were asymmetrical. The one which approached nearest my specimen is the one figured by Smith, where there was a ligamentous connection between the rib rudiment on the nineteenth and the sacrum, and as my specimen had been macerated before I examined it, I cannot tell whether there was such a connection or not.

As Wilder has used the same authors for his summary as has Smith, it is unnecessary to give his report.

None of these authors mention a case with the symmetrical pelvic attachment of both sides upon the eighteenth vertebra, nor one with symmetrical rudimentary ribs on any vertebra posterior to the sacral connection. It is rather significant that the nineteenth vertebra, the one that in the majority of cases bears the sacral ribs, should, in my specimen, have borne the rudimentary ones.

The fact that in this particular case, the first entire hæmal arch was found on the twenty-second vertebra, is not so remarkable. F. Smith records this position in sixty-two cases out of two hundred and forty-one. Wilder, also, states that the hæmal arch appears suddenly on the twenty-second to the twenty-fourth vertebra, usually the twenty-third. He then adds that in one case the vertebra just anterior to the first one bearing a complete hæmal arch, bore upon one side a slender process, four to five millimeters long, evidently representing an incomplete hæmal arch. But whether the vertebra which bore the complete hæmal arch was the twenty-second, twenty-third or twenty-fourth he does not say, so that one cannot tell whether the vertebra

with the incomplete hæmal arch was the twenty-first, as in my specimen, or one of the two next posterior.

Although Bumpus has shown by a careful comparison that the variation of the position of the first hæmal arch is entirely independent of that of the sacral vertebra yet the presence of even a partial arch upon a vertebra anterior to any previously recorded, when taken in connection with the extreme anterior location of the sacral connection, appears important.

Summarizing, then, the points of especial interest in the case in question, we have the following :

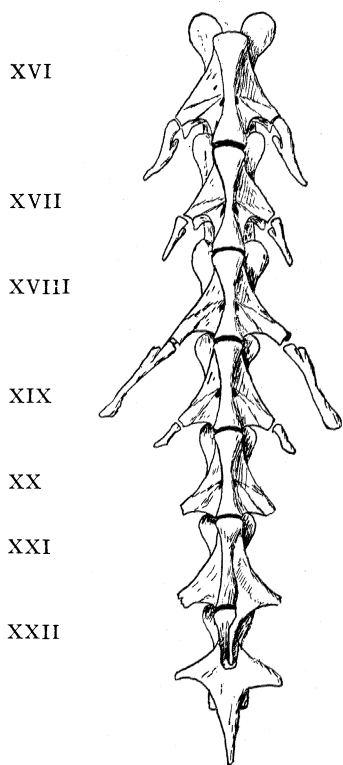


FIG. I.

1. The pelvic attachment to the eighteenth vertebra on both sides.
2. The presence of a pair of rudimentary ribs upon the nineteenth vertebra, the position of the usual pelvic attachment.
3. The presence of an incomplete hæmal arch upon the twenty-first vertebra.

SMITH COLLEGE,  
December 11, 1906.

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